## REMARKS/ARGUMENT

This communication is in response to the Office Action mailed May 19, 2004.

**Regarding the Amendment to the Specification:**

A typographical noted in the specification during preparation of this response has been corrected. No new matter has been introduced by this amendment.

**Regarding the Claims in General:**

Claims 1-6 are now pending. Claims 1-5 have been amended to better highlight the distinguishing features of the invention. The scope of these claims has not, however, been changed. Claims 2-5 have also been amended to correct the dependency (which previously corresponded to the claim numbering of the parent application of which this application is a division).

Claim 6 has been added to provide applicants with additional protection to which they are entitled in view of the cited prior art.

**Regarding the Rejection under 35 U.S.C. 112:**

Applicants respectfully traverse the rejection of claim 1 as incomplete. This invention resides in recognition that synchronization of an independently driven conveyor motor can be achieved on the basis of *position signals*. There is no requirement that speed be taken into account in computing the drive profile. Synchronizing on the basis of a measured speed is not even disclosed. Reconsideration and withdrawal of this rejection are accordingly respectfully requested.

**Regarding the Prior Art Rejection:**

In the outstanding Office Action, claims 1-5 were rejected as anticipated by Chapman et al. U.S. Patent 6,370,354 (Chapman). Applicants respectfully traverse this rejection.

Chapman is concerned with color laser printers which uses an intermediate transfer member (ITM) in the form of moving belt to apply an unfixed image to sheets of paper or other print

medium fed from a paper tray. The particular problem addressed by the patent is the elimination of registration errors of the images on the sheets.

This is accomplished by employment of sensors S1 and S2 at known distances from the image transfer nip point 106 (see Fig. 2) which detect the leading edge of the sheet. As described at col. 8, lines 17-60, from the known position of the leading edge of the unfixed image on the ITM belt 100, the remaining travel distance to nip point 106 is determined. That distance is compared with the distance between sensor S1 and the nip point, and any difference represents a positional error between the ITM image and the print medium.

Since the ITM travels at a fixed velocity, the measured positional error is eliminated by selecting the appropriate velocity for the print medium drive mechanism so the image on the ITM and the print medium arrive at the nip point together. The print medium velocity is adjusted when its leading edge passes sensor S2. From that point on the print medium travels at a fixed velocity in an essentially open loop control mode through the image transfer area (col. 8, lines 31-34). It is important to appreciate that the only parameter controlled is the sheet velocity. No drive profile involving multiple parameters is computed or generated.

In contrast, the problems addressed by the present invention are quite different. Here, a continuous web which passes through a succession of stations at which the web must be stopped so that different operations can be performed. As will be appreciated, different operations are performed simultaneously on the portions of the web located at the respective station. After each processing step, the web is moved one station down the line, and stopped again so the processing steps can be repeated.

As explained in the application, a single motor is conventionally used to drive all the processing stations and the conveying mechanism that carries the web from station to station. When the web is stopped at each station, the conveyor is decoupled from the drive motor, and it is re-engaged with the drive when the web must move to the next station.

This arrangement is suitable for processing rates which do not exceed about 6000 sheets per hour. Above that, however, difficulties are encountered due to the large accelerations and decelerations encountered at the beginning and end of each motion cycle. The problem is especially acute after performance of the so-called blanking operation in which the web is separated into

defined sections or sheets held together only by small uncut portions or "nicks". These are quite fragile, and can break under high acceleration causing the entire processing line to jam.

Mechanical contrivances have been tried in an effort the control the drive profile, i.e., the acceleration, deceleration and velocity of the conveyor but the result has not been entirely satisfactory.

According to the invention, it has been discovered that it is possible to employ a separate drive motor for the conveyor and to synchronize the travel of the web with the motion of the moving parts in the processing stations so that the web reaches the various processing stations at the right time, while also controlling the drive profile so that the web is not subjected to such high acceleration that the nicks between sheets are in danger of breaking.

Further according to the invention, computation of the required drive profile is accomplished using one or more position signals generated by encoders or equivalent devices operatively coupled to various parts of the system.

These features are clearly recited in the claims as amended. In particular, the claims are directed to a "method for operating a conveyor drive for a conveyor independently of a drive for a press station serviced by the conveyor". As recited in claim 1, the method comprises:

generating a press station position signal related to an operating position of said press station;

providing said position signal to a motor controller for operating said conveyor drive;

computing a set of parameters defining a drive profile for operating said conveyor drive based on said position signal; and

applying said drive profile to said conveyor drive to operate said conveyor drive . . .

Chapman is not designed to, nor is it capable of performing these functions. If the ITM is regarded as corresponding to the recited press station, it is clear that no signal is generated related to its position. The parameter of interest in Chapman is the position of the image *on* the belt, and that obviously varies from image to image.

Of course, absent a press station position signal, it can not be provided to the recited motor controller, nor can it be used to compute the recited set of parameters defining a drive profile. Apart from that, however, Chapman does not generate a set of parameters defining a drive profile

from any measurement. Rather, Chapman calculates only one parameter, namely a desired velocity for the sheet feeder. Thus, Chapman neither discloses or suggests the claimed method, nor an apparatus capable of performing the claimed method.

Claims 2-5 are dependent on claim 1 and are patentable for the same reasons. In addition, claim 2 calls for:

> calculating at least one of a duration and amplitude of one or more of said drive profile parameters in relation to said position signal. . .

while claim 3 specifies that the ". . .parameters in said drive profile include acceleration, deceleration and braking." These features, in combination with the features of claim 1, are not taught or suggested by Chapman.

Claims 4 and 5 respectively recite that conveyor position signals and conveyor drive angular position signals are employed for calculating the drive profile in addition to the press position signal. There is nothing like this in Chapman.

New claim 6 is similar to claim 1, but it emphasizes that the drive profile represents a complete operating cycle for the conveyor drive, wherein:

> said operating cycle comprises a moving phase in which a conveyed article is delivered to the press station by said conveyor, and a non-moving phase during which the conveyor pauses to permit an operation to be performed on the conveyed article by the press station . . .

In Chapman, there is no non-moving phase. Once the feeding of the print medium begins, it moves continuously from the image transfer point through the image fixing fuser to the delivery location. Thus claim 6, which recites the patentable features of claim 1, recites this additional feature not taught or suggested in Chapman.

**Regarding Other References Cited by the Examiner**

The other references cited by the Examiner but not applied have been considered, but the present claims are not anticipated or rendered obvious by these references.

In view of the foregoing, favorable reconsideration and allowance of this application are respectfully solicited.

I hereby certify that this correspondence is being transmitted by Facsimile to (703) 872-9306 addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date indicated below.

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Signature

August 19, 2004
Date of Signature

LAH:cw

Respectfully submitted,

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